SOURCE SELECTION STATEMENT
FOR
THE RESEARCH AND TECHNOLOGIES FOR
AEROSPACE PROPULSION SYSTEMS (RTAPS) PROCUREMENT
JOHN H. GLENN RESEARCH CENTER

On March 3, 2010, I met with the members of the Source Evaluation Board (SEB or "the board") appointed to evaluate proposals for the Research and Technologies for Aerospace Propulsion Systems (RTAPS) solicitation, NNC09ZR0001R. Several other officials of the John H. Glenn Research Center (GRC) also attended the meeting. This selection statement records my deliberative process and decisions stemming from the March 3, 2010, meeting.

The RTAPS is an Indefinite Delivery/Indefinite Quantity (ID/IQ) contract. This procurement activity is for a 5-year effort for a competitive task-order contract instrument for the research, design, and development of advanced aerospace propulsion technologies to meet advanced propulsion research related goals of projects within NASA's Aerospace Programs. A set of task order contracts will permit a more rapid means of competing and initiating work with industry as opposed to developing a separate contract for each funding opportunity.

The Statement of Work (SOW) is comprised of four technology areas and all resulting contract(s) will be awarded with the flexibility to have cost reimbursement, cost sharing and fixed price tasks. The values of the contracts are dependent upon the technology areas selected for award. The RFP was designed to allow offeror(s) maximum flexibility in proposing one or more technology areas of their choice. Technology areas consist of the following:

- Technology Area 1: Air Breathing Engine Technology
- Technology Area 2: Propulsion Airframe Integration–Airframe Systems
- Technology Area 3: Integrated Rotorcraft Propulsion–Airframe Systems
- Technology Area 4: Space Propulsion

Background

On July 28, 2009, Request for Proposal (RFP) NNC09ZR0001R was issued. Subsequently, four amendments to the RFP were issued. All of the offerors discussed below acknowledged the four amendments in writing. The past performance information was required by August 24, 2009, followed by submission of the remainder of the proposals due in September 9, 2009. All proposals were submitted in accordance with the RFP requirements and considered for award. The NASA received proposals from the following companies:

Name	Technology Area Proposed
1. Aerojet	4
2. ATK Mission Systems	4
3. Bell Helicopter	3
4. Boeing Company	2, 3
5. General Electric Aircraft Engines	1

6. Honeywell Aerospace and Defense	1, 2
7. Lockheed Martin Corporation	2
8. Northrop Grumman Integrated Systems	2
9. Northrop Grumman Aerospace Systems	4
10. Orbital Technologies Corporation (ORBITEC)	4
11. Pratt & Whitney Commercial	1, 2, 3
12. Pratt & Whitney Rocketdyne	4
13. Rolls-Royce North American Technologies, Inc. Liberty Works	1
14. United Technologies Research Center	2
15. Williams International	1

Immediately upon receipt, all proposals were reviewed to determine if they were acceptable for a detailed evaluation. All 15 proposals were deemed acceptable and were evaluated according to the solicitation's stated evaluation procedures.

Evaluation Procedure

The proposals were evaluated in accordance with Section "M" of the solicitation, Federal Acquisition Regulation (FAR) Subpart 15.3, and NASA FAR Supplement (NFS) 1815.3. In addition to the SEB, I appointed several expert nonvoting members to the evaluation team to assist the SEB in the evaluation of the mission suitability subfactors and sample task orders. Experts were appointed in areas such as safety and health, pricing, property management, past performance and for every sample task order contained in the solicitation. Each expert provided his written insight to the SEB for its consideration. Each SEB member read each proposal in its entirety. Subsequently, the SEB, as a group, reviewed and discussed each of the 15 proposals by technology area proposed, and considered the input of the nonvoting experts in reaching consensus findings.

The proposals were evaluated using three factors: mission suitability, cost/price, and past performance. Only the mission suitability factor received a quantitative score and qualitative ratings. The mission suitability factor was further divided into subfactors, which were assigned the following possible numerical scores:

Mission Suitability Subfactors	Possible Score
Sub-factor 1: Understanding the Technical Requirements (UR)	700 Points
• UR 1 Technical Approach to Technology Area	400 Points
• UR 2 Technical Approach to Sample Tasks	300 Points
Sub-factor 2: Management Plan and Approach	200 Points
Sub-factor 3: Small Business Utilization	100 Points
	Total 1,000 Points

The mission suitability factor was evaluated by assigning significant strengths, strengths, significant weaknesses, and weaknesses, in the form of SEB findings, to the various aspects of each offeror's proposal. After all findings were completed in the mission suitability factor, an adjective rating and corresponding numerical score were assigned to each mission suitability subfactor.

A cost/price realism analysis of each offeror's proposed costs by sample task order specific to each technology area proposed provided in the RFP was conducted and a probable cost was developed for selection purposes. Based on the realism analysis, each proposal was rated as high, medium, or low level of confidence to deliver the products and services offered at the proposed cost.

The past performance was evaluated and rated using the following scale: very high level of confidence, high level of confidence, moderate level of confidence, low level of confidence, very low level of confidence, neutral.

The RFP stated that mission suitability is the most important factor and is more important than past performance which is more important than cost. The mission suitability and past performance factors when combined are more important than cost. based on the above methodology, the SEB evaluated each proposal extensively.

Competitive Range

On December 15, 2010, a competitive range determination was made for each of the technology areas 1-4. A summary is as follows:

- The proposals from General Electric Aircraft Engines (General Electric), North American Technologies-Rolls Royce-Liberty Works (Liberty Works), Pratt and Whitney Commercial (Pratt and Whitney), Williams International (Williams), and Honeywell Aerospace and Defense (Honeywell) were determined to be the most highly rated proposals and therefore included in the competitive range for technology area 1.

- The proposals from The Boeing Company (Boeing), Lockheed Martin Corporation (Lockheed Martin) and Northrop Grumman Integrated Systems (Northrop Grumman) were deemed to be the most highly rated proposals for technology area 2 and were included in the competitive range.

- The proposals from Bell Helicopter (Bell), Boeing, Pratt and Whitney, were deemed to be the most highly rated proposals for technology area 3 and were included in the competitive range.

- The proposals from Aerojet, ATK Mission Systems (ATK), Northrop Grumman Aerospace, ORBITEC and Pratt and Whitney Rocketdyne, were deemed the most highly rated proposals for technology area 4 and were included in the competitive range.

Written Discussions and Final Proposal Revisions (FPR)

On December 21, 2009, the NASA GRC issued competitive range letters along with written discussion questions. The letters indicated a written response to the questions on January 20, 2010. The letter also requested an opportunity to submit an FPR on or before January 28, 2010.

Upon receipt of the written discussion questions and FPR the SEB performed an evaluation of the findings, developed an adjective rating and corresponding numerical score to each mission suitability subfactor. The SEB then presented its findings to me and other key NASA GRC personnel.

Mission Suitability Evaluation

Technology Area 1 Air Breathing Engine Technology

After reviewing the SEB's evaluation of each of the five companies competing in this technology area and asking several clarification questions, I was satisfied that the proposals received from General Electric, Liberty Works, and Pratt and Whitey offered very good overall approaches. Each of these three companies received several favorable findings for their understanding of the technical requirements and management approach. I also agreed with the SEB's conclusion that each of these proposals communicated a broad and deep understanding of the technological hurdles and opportunities in the air breathing technology discipline.

I then turned my attention to the findings regarding the proposals of Honeywell and Williams. I agreed with the SEB's findings that both proposals provided good management approaches for the technology area. For the understanding the technical requirements subfactor, I was particularly impressed with Honeywell's significant strength finding based on its proposed use of the LF502 engine as part of it's approach to completing the work described in the RFP's engine icing element. The LF502 engine is one of a few turbofan engines that have traversed the entire ice crystal problem and resolution process. I agreed with the SEB that access to this capability would significantly contribute to accomplishing NASA's goals and objectives in engine icing research. I also agreed with the SEB's strength finding involving testing of the same engine in the context of the technology area's sample task.

Regarding Williams' proposal, I was very impressed with the numerous strengths the proposal received for the company's extensive expertise in small engine technologies and proposed use of a large array of small engines and associated manufacturing and test facilities that will provide a cost effective approach to full system demonstrations for some of NASA's technology development efforts. The use of these cost effective full-system testing capabilities, at an economical cost, will allow NASA to conduct additional testing at higher level fidelity.

In sum, I agreed with the SEB's evaluation that each of the five companies competing in this technology area offered technical and management approaches to meeting the RTAPS requirements that are of value to the Government.

Technology Area 2 Propulsion Airframe Integration–Airframe Systems
Initially, I reviewed the SEB's evaluation and scoring of the three competing proposals, one each from Boeing, Lockheed Martin, and Northrop Grumman. I agreed with the SEB's analysis that Boeing submitted the most highly rated proposal for this technology area and provided a comprehensive and technologically sound approach to completing the statement of work. I then turned my attention to the Lockheed Martin proposal.

I was particularly impressed with the significant strength finding that the proposal received for Lockheed Martin's capabilities in embedded engine technology. Likewise, I agreed with the SEB's finding that the proposal's discussion of the subscale TBCC inlet under hypersonic conditions is highly relevant and of value to NASA's hypersonic work. I also concurred with the board's analysis that the proposed computational fluid dynamics solver "Falcon" offered substantial modeling capabilities that are of significant interest to NASA. I also found the board's awarding of a strength finding for Lockheed Martin's proposed use of a technical advisory panel as part of its management approach to be of value to NASA and agreed with the SEB's evaluation that such a technical board would increase the likelihood of successfully managing the contract work.

I was also impressed with several aspects of the Northrop Grumman proposal for this technology area. Specifically, I agreed with the SEB's significant strength finding regarding the proposed integrated embedded propulsion systems with serpentine inlet designs. I was also impressed with the proposed use of the X-47B as a flying test bed, which would be a cost effective approach to validating embedded propulsion technologies in future RTAPS tasks. The Northrop Grumman's proposed multiscale progressive failure analysis (PFA) tool also impressed the SEB and me. The tool can reduce experimental testing and supplement thermomechanical finite element analysis, which is of significant value to NASA.

In sum, I agreed with the SEB's evaluation that each of the three companies competing in this technology area offered technical and management approaches to meeting the RTAPS requirements that are of value to the Government.

Technology Area 3 Integrated Rotorcraft Propulsion–Airframe Systems
After reviewing the SEB's evaluation of each of the three companies competing in this technology area and asking several clarification questions, I was satisfied that the proposals received from Bell and Boeing offered very good overall approaches to completing the statement of work for this area. Each of these two companies received several favorable findings for their understanding of the technical requirements and management approach. I also agreed with the SEB's conclusion that each of these proposals communicated a broad and deep understanding of the technological hurdles and opportunities in this technology area.

After discussing the SEB's evaluation of Pratt and Whitney's proposal with the board and specifically examining the board's strength finding regarding the company's proposal in the area of rotorcraft deicing, I agreed that the proposed internationally recognized expert in rotorcraft icing, strong capability in de-icing system design including work in anti-icing surfaces, and very strong computational tool development competency directly align with and will benefit NASA's

subsonic Rotary Wing Project icing modeling goals. In sum, I agreed with the SEB's evaluation that each of the three companies competing in this technology area offered technical and management approaches to meeting the RTAPS requirements that are of value to the Government.

Technology Area 4 Space Propulsion
Initially, I reviewed the SEB's evaluation and scoring of each of the five proposals, one each from Aerojet, ATK, Northrop Grumman Aero, ORBITEC, and Pratt and Whitney Rocketdyne. I agreed with the SEB's evaluation that Pratt and Whitney Rocketdyne submitted the most highly rated proposal for this technology area. I was also impressed with the comprehensive capabilities proposed by Aerojet and Northrop Grumman Aero. Specifically, I agreed with the significant strength finding awarded to Northrop Grumman Aero for its proposed leveraging of several technologies previously developed in the area of advanced nontoxic chemical propulsion.

I also agreed with the SEB's findings indicating that both ATK and ORBITEC submitted solid proposals and unique capabilities for this technology area. The ATK received strength findings for its proposed approach to nontoxic chemical propulsion and its unique hypersonic test complex. The ORBITEC merited a significant strength for its proposed commitment to using small businesses in completion of work on the contract.

In sum, I agreed with the SEB's evaluation that each of the companies competing in this technology area offered a technical and management approach that is of value to the Government in this technology area.

Cost/Price Evaluation

The RFP required the offerors to propose costs on each of the sample tasks. The SEB did not make any probable cost adjustments to the costs proposed. I agree that the proposed costs are reasonable and did not consider the factor a key discriminator in my selection decision.

Past Performance Evaluation

In accordance with the RFP, the SEB evaluated each offeror's past performance data. Offerors were required to submit a narrative description of a minimum of three past contracts. Offerors were to consider both the type of work performed and the magnitude of the effort(s) as they relate specifically to the RTAPS requirements and submit past performance questionnaires, completed by the offeror's customers, from previous or current contracts. The SEB reviewed all past performance narratives and questionnaires, as well as information independently obtained from the NASA past performance database. I agreed with the SEB's evaluation of past performance and did not consider the factor a key discriminator in my selection decision.

Selection Decision
Technology Area 1 Air Breathing Engines

Therefore, in accordance with the RFP requirements that state the Government will award a contract resulting from the RTAPS solicitation to the offerors whose proposal represents the

best value considering that mission suitability is the most important factor and is more important than past performance which is more important than cost. The mission suitability and past performance factors when combined are more important than cost. I select the following companies for award in this technology area: General Electric, Honeywell, Rolls Royce Liberty Works, Pratt and Whitney Commercial and Williams International.

Technology Area 2 Propulsion Airframe Integration–Airframe Systems Technology

Therefore, in accordance with the RFP requirements that state the Government will award a contract resulting from the RTAPS solicitation to the offerors whose proposal represents the best value considering that mission suitability is the most important factor and is more important than past performance which is more important than cost. The mission suitability and past performance factors when combined are more important than cost. I select the following companies for award in this technology area: Boeing, Lockheed Martin, and Northrop Grumman Integrated Systems.

Technology Area 3 Integrated Rotorcraft Propulsion–Airframe Systems Technology

Therefore, in accordance with the RFP requirements that state the Government will award a contract resulting from the RTAPS solicitation to the offerors whose proposal represents the best value considering that mission suitability is the most important factor and is more important than past performance which is more important than cost. The mission suitability and past performance factors when combined are more important than cost. I select the following companies for award in this technology area: Bell, Boeing, and Pratt and Whitney Commercial.

Technology Area 4 Space Propulsion

Therefore, in accordance with the RFP requirements that state the Government will award a contract resulting from the RTAPS solicitation to the offerors whose proposal represents the best value considering that mission suitability is the most important factor and is more important than past performance which is more important than cost. The mission suitability and past performance factors when combined are more important than cost. I select the following companies for award in this technology area: Aerojet, ATK, Northrop Grumman Aerospace, ORBITEC, and Pratt and Whitney Rocketdyne.

Ramon Lugo
Source Selection Authority

3/22/10
Date

Concur:

Bradley J. Baker
Procurement Officer

3-12-2010
Date